K-2 Mathematics Resources to Extend and Enrich the Core Curriculum Appropriate for High Ability Students
Indiana Academic Standard Strand:
Computation and Algebraic Thinking

Resource	Annotation	Differentiation Tip(s)	Correlating Indiana Academic Strand Standards	Correlating Indiana Academic Process Standards
AIMS Education Foundation (2007) ***Solve It! K-1: Problem Solving Strategies.*** Fresno, CA: AIMS Education Foundation. www.aimsedu.org (ISBN: 978-1-932093-14-8) *Also found in:* • *Geometry* • *Measurement* • *Data Analysis* • *Number Sense*	This resource includes 29 activities designed to introduce and develop the following eight problem solving strategies: • Guess and Check • Look for Patterns • Use Manipulatives • Draw Out the Problem • Use Logical Thinking • Write a Number Sentence • Work Backwards • Organize the Information Through involvement in the activities, students apply grade-	***Tiered Delivery:*** The "Management" section of each activity provides specific suggestions on how to adjust the challenge level specific to that activity. ***Flexible Grouping:*** Arrange students in like-ability partners or small groups to work on problem solving activities. ***Self-Pacing:*** Allow individuals/partners/small	K.CA.1; K.CA.2; K.CA.3; K.CA.4; K.CA.5 1.CA.1; 1.CA.2; 1.CA.3; 1.CA.4	PS.1; PS.2; PS.3; PS.4; PS.5; PS.6; PS.7; PS.8

	level academic strand content skills. This resource is ideal for math club use.	groups to work through the activities related to each problem solving strategy as fast and as far as they are able. Incorporate additional grade level AIMS Solve It! activities, as needed, for acceleration beyond the second grade level. (See "3-5 Mathematics Resources to Extend and Enrich the Core Curriculum Appropriate for High Ability Students")		
AIMS Education Foundation (2008) ***Solve It! 2nd: Problem Solving Strategies.*** Fresno, CA: AIMS Education Foundation. www.aimsedu.org (ISBN: 978-1-932093-15-5) *Also found in:* • *Geometry* • *Measurement* • *Data Analysis* • *Number Sense*	This resource includes 28 activities designed to introduce and develop the following nine problem solving strategies: • Guess and Check • Look for Patterns • Use Manipulatives • Draw Out the Problem • Write a Number Sentence • Use Logical Thinking • Organize the Information • Work Backwards • Wish for an Easier Problem Through involvement in the activities, students apply grade-level academic strand content skills. This resource is ideal for	***Tiered Delivery:*** The "Management" section of each activity provides specific suggestions on how to adjust the challenge level specific to that activity. ***Flexible Grouping:*** Arrange students in like-ability partners or small groups to work on problem solving activities. ***Self-Pacing:*** Allow individuals/partners/small groups to work through the activities related to each problem solving strategy as fast and as far	1.CA.1; 1.CA.2; 1.CA.3; 1.CA.4; 1.CA.5; 1.CA.6; 1.CA.7 2.CA.1; 2.CA.2; 2.CA.6	PS.1; PS.2; PS.3; PS.4; PS.5; PS.6; PS.7; PS.8

	math club use.	as they are able. Incorporate additional grade level AIMS Solve It! activities, as needed, for acceleration beyond the second grade level. (See "3-5 Mathematics Resources to Extend and Enrich the Core Curriculum Appropriate for High Ability Students")		
Cavanagh, M., et al (2004) ***Navigating through Number and Operations in Prekindergarten-Grade 2.*** Reston, VA: The National Council of Teachers of Mathematics, Inc. www.nctm.org (ISBN: 0-87353-548-0) *Also found in:* • *Number Sense*	This resource includes activities that introduce, develop, and extend the fundamental ideas of number and operations. Activities are divided into the following chapters: • Counting, Ordering, and Representing Numbers • Meanings of Operations • Fact Strategies, Estimation, and Computation Blackline Masters are included.	***Tiered Delivery:*** Match the grade level resource most appropriate to the readiness level of students. For the third through sixth grade levels of this resource, see "3-5 Mathematics Resources to Extend and Enrich the Core Curriculum Appropriate for High Ability Students."	K.CA.1; K.CA.3; K.CA.4 1.CA.1; 1.CA.2; 1.CA.4; 1.CA.6 2.CA.1; 2.CA.2; 2.CA.5; 2.CA.6	PS.1; PS.2; PS.3; PS.4; PS.5; PS.6; PS.7; PS.8
Christensen, E. (2009) ***Coin Clues: Logic Puzzles that Reinforce Coin Values and Strengthen Math Skills (Level A)***. MindWare Holdings, Inc.	This reproducible book contains 108 "coin clues" puzzles. The object of each puzzle is to put coins in a line to match the clues. The puzzles use pennies, nickels,	***Tiered Delivery:*** Students needing less of a challenge can be assigned lower-numbered puzzles to solve, and students needing more of a	K.CA.1; K.CA.2; K.CA.3; K.CA.4	PS.1; PS.2; PS.3; PS.4; PS.5; PS.6; PS.7; PS.8

www.mindware.com (ISBN: 978-1-933054-99-5) *Also found in:* • *Measurement* • *Number Sense*	dimes, and quarters. The puzzles get progressively more challenging throughout the book and help students develop coin recognition, money sense, logic, sequencing, and reasoning skills. These puzzles are ideal for independent task time or for partner problem solving. It is recommended that real coins be available for students to use in solving the puzzles.	challenge can be assigned higher-numbered puzzles to solve. ***Self-Pacing:*** All 108 puzzles can be stapled into a book and students can progress through the puzzles at their own pace working through as many as they are able. ***Choice:*** Provide students all puzzles (i.e., laminated copies) and allow them to choose which puzzles they would like to complete. Explain to students that the lower the number, the easier the puzzle and the higher the number, the more difficult the puzzle.	1.CA.1; 1.CA.2; 1.CA.4; 1.CA.5; 1.CA.6; 2.CA.1; 2.CA.2; 2.CA.6	
Cook, M. (2008) ***Count & Place: Sides and Shapes.*** Balboa Island, CA: Marcy Cook Math. www.marcycookmath.com *Also found in:* • *Geometry* • *Number Sense*	In the third section of this resource, "Show the Number with Pattern Blocks," students use the relationship between pattern blocks and the number each represents (triangle=1; rhombus=2; trapezoid=3; hexagon=6) to "build" each of the numbers from 4 – 19 in four	***Tiered Delivery:*** Students needing less of a challenge can "build" lower-value numbers with fewer possible combination solutions, and students needing more of a challenge can "build" higher-value numbers with a greater number of possible combination solutions.	K.CA.1; K.CA.2; K.CA.3; K.CA.4 1.CA.1; 1.CA.2; 1.CA.3; 1.CA.4;	PS.1; P.S.2; P.S.4; P.S.5; P.S.6; P.S.7; P.S.8

	different ways. Example: 8 = hexagon+rhombus 8 = hexagon+2 triangles 8 = 4 blue rhombi 8 = 8 triangles A tracking sheet is included to keep track of task completion progress.	***Self-Pacing:*** Allow students to complete the "Show the Number with Pattern Blocks" tasks at their own pace, keeping track of their progress and moving through the numbers as far as they are able. ***Choice:*** Provide students all numbers and allow them to choose the numbers they would like to "build." ***Extend:*** Extend the activity by asking students to "build" numbers up to 100 by stacking groups of pattern blocks.	1.CA.6 2.CA.1; 2.CA.2; 2.CA.3; 2.CA.6	
Cook, M. (1982) ***Dealing with Dominoes.*** Balboa Island, CA: Marcy Cook Math. www.marcycookmath.com *Also found in:* • *Number Sense*	This resource provides a variety of activities that use double six sets or double nine sets of dominoes. The activities focus on the following areas: • Early Number Concepts • Basic Addition Facts • Basic Subtraction Facts	***Flexible Grouping:*** Arrange students in like-ability partners or small groups to work on appropriately leveled domino-placing activities.	K.CA.1; K.CA.2; K.CA.3; K.CA.4 1.CA.1; 1.CA.2; 1.CA.3;	PS.1; PS.2; PS.3; PS.4; PS.5; PS.6; PS.7; PS.8

	• Place Value and Regrouping • Basic Multiplication Facts • Basic Division Facts • Common Fractions Because the activities are so varied, this resource is appropriate for grades K-3 and beyond.		1.CA.4; 1.CA.5; 1.CA.6 2.CA.1; 2.CA.2; 2.CA.6	
Cook, M. (1992) ***Duo Do Dominoes***. Balboa Island, CA: Marcy Cook Math. www.marcycookmath.com *Also found in:* • *Number Sense*	This resource provides two levels ("A" & "B") of domino-placing activities, each level offering 20 challenges. Students use one set of double six dominoes to complete mathematical challenges involving addition, greater than and less than, and equalities. Level "B" adds the challenge of domino-placing rules, including patterns of descending order, ascending order, and consecutive order, as well as requiring addends that equal larger sums. A tracking sheet is included to keep track of task completion progress. This is an excellent resource for like-ability partner problem solving and also works well for	***Tiered Delivery:*** Partners/Individuals needing less of a challenge can solve challenges from Level "A." Partners/Individuals needing more of a challenge can solve challenges from Level "B." ***Self-Pacing:*** Allow like-ability partners or individuals to complete the "Level A" or "Level B" challenges at their own pace, keeping track of their progress and moving through the challenges as far as they are able. ***Choice:*** Provide students all challenges (i.e., laminated copies) and allow	K.CA.1; K.CA.2; K.CA.3; K.CA.4 1.CA.1; 1.CA.2; 1.CA.4; 1.CA.6 2.CA.1; 2.CA.2; 2.CA.6	PS.1; PS.2; PS.3; PS.4; PS.5; PS.6; PS.7; PS.8

	independent task time.	them to choose which ones they would like to complete. Explain to students that "Level A" is less challenging and "Level B" is more challenging.		
Cook, M. (2001) ***Money Logic***. Balboa Island, CA: Marcy Cook Math. www.marcycookmath.com *Also found in:* • *Measurement* • *Number Sense*	This resource provides clues for students to listen to and/or read which challenge them to place coins in proper numerical positions. The resource is divided into sections where students use 3 designated coins, 4 designated coins, 5 designated coins, and 6 designated coins from a set of 12 coins total, up to 2 of each: penny, nickel, dime, quarter, half-dollar, and dollar. Students develop money sense and logical reasoning. These activities are ideal for independent task time, partner problem solving, or whole-class involvement. It is recommended that real coins be available for students to use in solving the activities.	***Tiered Delivery:*** Students needing less of a challenge can be assigned 3-coin challenges, and students needing more of a challenge can be assigned 4-, 5-, or 6-coin challenges.	K.CA.1; K.CA.2; K.CA.3; K.CA.4 1.CA.1; 1.CA.2; 1.CA.3; 1.CA.4; 1.CA.5; 1.CA.6 2.CA.1; 2.CA.2; 2.CA.6	PS.1; PS.2; PS.3; PS.4; PS.5; PS.6; PS.7; PS.8
Cook, M. (2011) ***Scavenger***	This resource provides 30	***Flexible Grouping:***	K.CA.1;	PS.1; PS.2;

Hunts for Primary Thinkers. Balboa Island, CA: Marcy Cook Math. www.marcycookmath.com *Also found in:* • *Measurement* • *Number Sense*	activities in which students match 12 answers to 12 problems. Students are required to do "double thinking" because the "answer" may be presented in a different way. Some solutions "have to be," and some have more than one possibility. The activities focus on the following concepts: • Right After • Right Before • More Than • Less Than • Between • Greater Than/Less Than • Numbers in the Real World • Addition Facts • Subtraction Facts • Money • Half of • 2-Digit Numbers/Place Value • Line Segments • Clocks: Time • Word Problems • Reasonable Numbers A tracking sheet is included. This resource is ideal for independent task time or partner problem	Assign like-ability partners to work through the Scavenger Hunts. ***Self-Pacing:*** Individuals or like-ability partners can progress through the Scavenger Hunts at their own pace, keeping track of their progress and moving through the activities as far as they are able.	K.CA.2; K.CA.3; K.CA.4 1.CA.1; 1.CA.2; 1.CA.6 2.CA.6	PS.3; PS.4; PS.5; PS.6; PS.7; PS.8

	solving.			
Cook, M. (1994) ***Shapes & Logic: Young Geometry.*** Balboa Island, CA: Marcy Cook Math. www.marcycookmath.com *Also found in:* • *Geometry* • *Reasoning, Logic, Problem Solving, Visual Spatial, and Strategic Thinking*	In the third section of this resource, students use pattern blocks to create designs worth specified values when the triangle=1, the rhombus=2, the hexagon=3, and the hexagon=6. The build-a-number activities are broken down into the following three categories: • Different ways to make a number • Different number of blocks (least blocks, most blocks, all possible numbers of blocks) • Different number of colors (only 1 color, exactly 2 colors, exactly 3 colors, all 4 colors) This resource is ideal for independent task time or partner problem solving.	***Tiered Delivery:*** The activities in each section of this resource are progressively more difficult. Match the activities assigned to the readiness level of the students. ***Choice:*** Provide students all activities (i.e., laminated copies) and allow them to choose which ones they would like to complete. ***Extend:*** For students needing an extra challenge, use the three category ideas in this section to assign the building of three-digit numbers by instructing students to stack pattern blocks. For example, a stack of 6 hexagons=36. For solution recording purposes, the shape can be traced and the number indicating the stack height can be written inside the shape tracing.	K.CA.1; K.CA.2; K.CA.3; K.CA.4 1.CA.1; 1.CA.2; 1.CA.4; *1.CA.5; 1.CA.6 *2.CA.1; *2.CA.2; 2.CA.6 * Applies to "Extend" implementation.	PS.1; PS.2; PS.3; PS.4; PS.5; PS.6; PS.7; PS.8

Cook, M. (1996) ***Skillboard Math.*** Balboa Island, CA: Marcy Cook Math. www.marcycookmath.com *Also found in:* • *Measurement*	Student partners use verbal directives and tiles numbered 0-9 to match specified numbers with number representations on skillboards. At the end of each activity, one of the digits will not be requested and will be held high in the air. This resource provides for children an opportunity to see the numbers 0-9 represented in a variety of ways, which develops number sense, while also developing math vocabulary and cooperation. Partners should change skillboards between activities to see different number representations each time. The concepts developed include: • Before • After • Between • Before, After, Between Mix • More Than • Less Than • More Than/Less Than Mix • Place value: Tens Place • Place Value: Ones Place • Place Value: Ones and Tens Mixed	***Flexible Grouping:*** Assign like-ability partners to work on skillboard completion.	K.CA.1; K.CA.2; K.CA.4 1.CA.1; 1.CA.2; 1.CA.4; 1.CA.6 2.CA.6	PS.1; PS.2; PS.3; PS.4; PS.5; PS.6; PS.7; PS.8

	• Addition Facts • Subtraction Facts • Addition/Subtraction Facts Mixed • Even/Odd Numbers • Money • Time			
Cook, M. ***Tile Task Cards.*** Balboa Island, CA: Marcy Cook Math. www.marcycookmath.com ***Kindergarten:*** ***a) Count & Add Tiles (2)*** ***b) First Count, Then Add Tiles (1)*** ***c) Plus Tiles (2)*** ***Grade 1:*** ***d) Add An Addend Tiles (2)*** ***e) Add-Sub Combo Tiles (2)*** ***f) Add/Sub To A Target Tiles (2)*** ***g) Balance Basic Addition Fact Tiles (2)***	Each packet of tiling task cards includes 20 activity cards that require students to reason mathematically. The cards within each set are progressively more difficult. Each title is one of three challenge levels: Level 1 = specific solutions (most or all "have to be") Level 2 = some probing Level 3 = more open ended (opportunities for experimenting and persevering) Level 3 is a robust challenge. The challenge level for each title is reported in parentheses. Each packet includes a direction card, example problem card, answer sheet, and a tracking sheet. A set of number tiles 0 - 9 is needed for each student/pair of students	***Self-Pacing:*** Students can progress through the 20 cards in each set/title at their own pace, keeping track of their progress and moving through the cards as far as they are able. ***Choice:*** Provide students all 20 cards in a set/title. Allow them to choose a certain number of cards they would like to complete, explaining that the cards from number 1 to 20 are progressively more difficult.	**K.CA.1 =** a, b, c, d, e, f, g, h, i, j, k, l, m, n, o, r, s, t, u, v **K.CA.2=** a, b, c, d, e, f, g, h, i, j, k, l, m, n, o, r, s, t, u, v **K.CA.3=** a, b, c, d, e, f, g, h, i, j, k, l, m, n, o, r, s, t, u **K.CA.4=** a, b, c, d, e, f, g, h, i, j, k, l, m, n, o, r, s, t, u, v	PS.1; PS.2; PS.3; PS.4; PS.5; PS.6; PS.7; PS.8

h) Balance to 12 Tiles (2) ***i) Bear Equation Tiles (2)*** ***j) Bunny Function Tiles (2)*** ***k) Tri Add Tiles (2)*** ***Grade 2:*** ***l) Addition Balance Tiles (2)*** ***m) Add & Subtract X & Y Tiles (2)*** ***n) Column Tiles (2)*** ***o) Multi Grid Paper Tiles (2)*** ***p) Multiplication Fact Tiles (2)*** ***q) Place Value Tiles: Whole Numbers (2)*** ***r) Plus-Minus Checker Tiles (3)*** ***s) Positive & Negative Add-Sub Tiles (2)*** ***t) Sum Fun: Tile A Letter (3)*** ***u) Sum Problem Tiles (3)*** ***v) X=Fun Tiles (2)*** *Additional Tile Task Cards titles found in:* • *Number Sense*	completing a task card. Tile task cards are ideal for independent task time, partner problem solving, and/or homework activities. Grade levels suggested are only recommendations; the use of titles is flexible between the grade levels depending on the readiness level of students.		**K.CA.5=** j, m, o, s **1.CA.1=** c, d, e, f, g, h, i, j, k, l, m, n, o, q, r, s, t, u, v **1.CA.2=** c, d, e, f, g, h, i, j, q, k, l, m, n, o, r, s, t, u, v **1.CA.3=** j, q **1.CA.4=** j, k, l, m, n, o, q, r, t, u **1.CA.5=** n, o, p, q **1.CA.6=** a, b, c, d, e, f, g, h, i, j, k, l, m, n, o, p, q, r, s, t, u, v **1.CA.7=** j, o, p, q	

			2.CA.1= n, o, q **2.CA.2=** n, o, q **2.CA.4=** q **2.CA.5=** o, p **2.CA.6=** a, b, c, d, e, f, g, h, i, j, k, l, m, n, o, r, t, u **2.CA.7=** o, p, q	
Duea, J. and Ockenga, E. (1999) ***Nifty Problem Card Deck (Levels A-F)***. Edmonds, WA: Joyful Noise Publications. www.shop.joyful-noise.com *Also found in:* • *Geometry* • *Measurement*	This program offers six grade levels of problem-solving cards for K/1-6. Each level contains 72 task cards, recording sheets, answer keys, transparency masters, blackiline masters, and teaching notes. These cards are ideal for running a cooperative self-paced problem-solving program.	***Flexible Grouping:*** Assign like-ability partners to work through the problem-solving cards. ***Self-Pacing:*** Individuals or like-ability partners can progress through the cards in each level at their own pace, keeping track of their progress	K.CA.1; K.CA.2; K.CA.3; K.CA.4; K.CA.5 1.CA.1; 1.CA.2; 1.CA.4; 1.CA.5;	PS.1; PS.2; PS.3; PS.4; PS.5; PS.6; PS.7; PS.8

• *Data Analysis* • *Number Sense*		and moving through the cards as far as they are able.	1.CA.5; 1.CA.6 2.CA.1; 2.CA.2; 2.CA.6	
Equabeam. ETA hand2mind. www.hand2mind.com *Also found in:* • *Measurement* • *Number Sense*	The Equabeam is a self-checking math balance that students can use to show operations, equalities, and inequalities. Additional strips with time increments and measurements, along with customizable strips allow for across-the strand equality activities. This resource is ideal for use during independent task time or partner problem solving.	***Extend:*** Adjust the level of challenge for any grade level by changing the number of weights and the number values used.	K.CA.1; K.CA.2; K.CA.3; K.CA.4 1.CA.1; 1.CA.2; 1.CA.4; 1.CA.5; 1.CA.6 2.CA.1; 2.CA.2; 2.CA.3; 2.CA.6	PS.1; PS.2; PS.3; PS.4; PS.5; PS.6; PS.7; PS.8
Femiano, R. (2010) ***Balance Math & More! Level 1.*** Seaside, CA: The Critical Thinking Co. www.criticalthinking.com (ISBN: 978-1-60144-276-	This reproducible resource contains the following three types of challenging puzzles: • Balance Math (Students study three balanced scales	***Tiered Delivery:*** The activities in this resource are progressively more difficult. Match the activities assigned to the readiness level of the students.	K.CA.1; K.CA.2; K.CA.4 1.CA.1;	PS.1; PS.2; PS.3; PS.4; PS.5; PS.6; PS.7; PS.8

5)	to deduce and calculate the value of any one shape which can then be substituted on another balance, etc. These puzzles introduce students to the basics of balancing and solving algebraic equations.) • Inside-Out Math (Students use inverse relationships between addition and subtraction to solve these puzzles.) • Tic Tac Math (Students fill in a 3X3 grid so that all rows, columns, and diagonals add up to the same sum.) All three types of challenges develop critical thinking skills, addition and subtraction computational skills, and algebraic reasoning skills. The challenges are progressively more difficult and are appropriate for K-2 and beyond. This resource is ideal for independent task time, partner problem solving, and/or homework challenges.	***Flexible Grouping:*** Assign like-ability partners to work through readiness-appropriate challenges.	1.CA.2; 1.CA.4; 1.CA.5; 1.CA.6 2.CA.1; 2.CA.2; 2.CA.4; 2.CA.6	

Goddard, J. (2008) ***Complete the Picture Math: Book 1 and Book 2***. Seaside, CA: The Critical Thinking Co. www.criticalthinking.com (ISBN: 978-1-60144-169-0)	This reproducible resource contains over 80 animal-themed math word problems that require students to think critically as they develop and apply basic math concepts. In addition, a "complete the picture" animal that children finish drawing and coloring accompanies each word problem. This resource is ideal for use in a math problem solving binder that students can work in when all other work is finished. Book 1 is appropriate for Kindergarten or grade 1, and Book 2 is appropriate for grade 1 or grade 2.	N/A	K.CA.1; K.CA.2; K.CA.4 1.CA.1; 1.CA.2; 1.CA.4; 1.CA.5; 1.CA.6 2.CA.1; 2.CA.2; 2.CA.5; 2.CA.6	PS.1; PS.2; PS.3; PS.4; PS.5; PS.6; PS.7; PS.8
Greenes, C. et al. (2001) ***Navigating through Algebra in Prekindergarten-Grade 2.*** Reston, VA: The National Council of Teachers of Mathematics, Inc. www.nctm.org (ISBN: 978-0-87353-499-9)	This resource includes activities that introduce, develop, and extend the fundamental ideas of algebra. Activities are divided into the following chapters: • Patterns • Variables and Equality • Relations and Functions Blackline Masters are included.	***Tiered Delivery:*** Match the grade level resource most appropriate to the readiness level of students. For the third through sixth grade levels of this resource, see "3-5 Mathematics Resources to Extend and Enrich the Core Curriculum Appropriate for High Ability Students."	K.CA.1; K.CA.2; K.CA.3; K.CA.4; K.CA.5 1.CA.1; 1.CA.2; 1.CA.4; 1.CA.6	PS.1; PS.2; PS.3; PS.4; PS.5; PS.6; PS.7; PS.8

		Extend: This resource is appropriate for all students. See the "Extend" section of each activity for additional challenging activities appropriate for high ability math students.	2.CA.1; 2.CA.2; 2.CA.4; 2.CA.6	
Lehet, J. (2008) ***Number Circuits***. Roseville, MN: MindWare Holdings, Inc. www.mindware.com (ISBN: 978-1-933054-60-5)	This reproducible resource contains progressively difficult number puzzles that require the use of mental math dealing with addition and subtraction, as well as logic skills. Students arrange specified digits in a specific order and shape. This resource is ideal for use as homework challenges.	***Tiered Delivery:*** The activities in this resource are progressively more difficult. Match the activities assigned to the readiness level of the students. ***Self-Pacing:*** Individuals or like-ability partners can progress through the puzzles at their own pace, keeping track of their progress and moving through the puzzles as far as they are able.	K.CA.1; K.CA.2; K.CA.3; K.CA.4 1.CA.1; 1.CA.2; 1.CA.4; 1.CA.6 2.CA.6	PS.1; PS.2; PS.3; PS.4; PS.5; PS.6; PS.7; PS.8
Math Dice, Jr., Thinkfun. www.thinkfun.com *Also found in:* • *Number sense*	Math Dice, Jr. is a dice game. Students use addition and/or subtraction and the five numbers rolled on five 6-sided "scoring dice" to hit the target number rolled on a 12-sided "target die." Students receive one point for	***Tiered Delivery:*** Change the type of dice, the number of dice, and the operations used to differentiate the challenge level up and/or down. As an example, use two 12-sided "target dice" and add or	K.CA.1; K.CA.2; K.CA.3; K.CA.4 1.CA.1; 1.CA.2;	PS.1; PS.2; PS.3; PS.4; PS.5; PS.6; PS.7; PS.8

	each "scoring die" used during his/her turn. The game develops flexible thinking and mental math skills.	multiply them to determine the "target number" and use 12 6-sided "scoring dice," allowing students to use all operations – addition, subtraction, multiplication and/or division. ***Flexible Grouping:*** Assign like-ability partners/like-ability small groups to play the game.	1.CA.4; *1.CA.5; 1.CA.6 * Applies to an increased challenge in the level of play.	
Muggins! Muggins Math Games. Ellijay, GA: Old Fashioned Products, Inc. www.mugginsmath.com *Also found in:* • *Number Sense*	Muggins! is a game designed to develop algebraic reasoning skills, problem solving, number sense, and number operation skills. There are multi-levels of play, which makes the game appropriate for K-2 and beyond. A demonstration video is available on You Tube.	***Tiered Delivery:*** Change the type of dice, the number of dice, and the operations used to differentiate the challenge level up and/or down. There are suggestions for multi-level play in the direction pamphlet that comes with the game. ***Flexible Grouping:*** Assign like-ability partners/like-ability small groups to play the game.	K.CA.1; K.CA.2; K.CA.3; K.CA.4 1.CA.1; 1.CA.2; 1.CA.4; *1.CA.5; 1.CA.6 2.CA.1; 2.CA.2; *2.CA.4; 2.CA.6 * Applies to	PS.1; PS.2; PS.3; PS.4; PS.5; PS.6; PS.7; PS.8

			an increased challenge in the level of play.	
VandeCreek, B. (2001) ***Math Rules! 1st-2nd.*** Pieces of Learning: www.piecesoflearning.com. (ISBN: 978-1-880505-79-3) *Also found in:* • *Geometry* • *Measurement* • *Data Analysis* • *Number Sense*	This reproducible resource provides a year's worth of weekly 8-problem enrichment challenge worksheets for both first and second grade. The variety of problems covers standards from all content strands. These worksheets are ideal for homework use.	***Tiered delivery:*** Match the grade level resource most appropriate to the readiness level of students. For the third through sixth grade levels of this resource, see "3-5 Mathematics Resources to Extend and Enrich the Core Curriculum Appropriate for High Ability Students."	K.CA.1; K.CA.2; K.CA.3; K.CA.4; K.CA.5 1.CA.1; 1.CA.2; 1.CA.4; 1.CA.5; 1.CA.6 2.CA.1; 2.CA.2; 2.CA.4; 2.CA.6	PS.1; PS.2; PS.3; PS.4; PS.5; PS.6; PS.7; PS.8
Zaccaro, Edward. (2003) ***Primary Grade Challenge Math.*** Bellevue, IA: Hickory Grove Press. www.challengemath.com (ISBN: 978-0-9679915-3-5)	This resource includes 27 higher-level conceptual problem-solving challenges. Each is presented first as a whole-class introduction, followed by practice problems at the following four levels of	***Tiered Delivery:*** Following the whole-class introduction to a specific type of problem, students can complete the appropriately leveled follow-up challenge independently or	1.CA.1; 1.CA.2; 1.CA.4; 1.CA.5; 1.CA.7	PS.1; PS.2; PS.3; PS.4; PS.5; PS.6; PS.7; PS.8

Also found in: • *Geometry* • *Measurement* • *Number Sense*	challenge: Level 1 (easy) Level 2 (somewhat challenging) Level 3 (challenging) Genius (very challenging) Problem challenge topics include: sequences, problem solving, money, percents, algebraic thinking, negative numbers, logic ratios, probability, measurements, fractions, and division. Most appropriate for first and/or second grade.	with a like-ability partner, choosing from one of the four difficulty levels.	2.CA.1; 2.CA.2; 2.CA.3; 2.CA.4; 2.CA.5; 2.CA.6; 2.CA.7	